

## CENTRAL INTELLIGENCE AGENCY

## INFORMATION REPORT

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THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.  
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- 25X11. Locomotive firing, in relationship to coal consumption, is a serious problem in the Hungarian economy. As is known, the dimensions of the boiler depend on the track gauge and on the burning of a certain quantity of coal during a given period to produce the required tractive power. To avoid excessive dimensions of the fire box, the grating is designed for heavy loads, that is, to burn a large quantity of coal per square meter per hour. This requirement is easily satisfied when high-grade English, Ruhr, Polish, or Czech coal is used. However, the situation is far from satisfactory in regard to Hungarian coal.
2. In illustrating the productivity of the locomotive stoker it is, incidentally, of interest to note that in the West, coal of 6,000-7,000 calorie-kilograms is being used, while the heating value of the coal used by the Hungarian State Railroads is between 3,000 and 4,000 calorie-kilograms. In other words, a Western locomotive stoker can obtain 6-7 million calories from one ton of coal, but the stoker in Hungary can obtain only 3-4 million calories, or approximately one half of the heating value. In practice, this means that the Hungarian locomotive stoker has to work twice as hard as his Western counterpart.
3. Between the two world wars Hungary was compelled to import large quantities of coal year after year. This imported coal was largely used for two purposes, namely, for coking for the ferrous metallurgy and for the railroads. The railroads used the imported coal mixed with domestic coal.
- a. Anthracite (of over 5,000 calorie-kilogram heating value) is mined in Hungary only in the Pecs coal basin. However, due to its high sulphur content, this coal is not suitable for the firing of locomotives in its natural condition and must be mixed with desulphurized coal. The most suitable coal is found in the Dorog-Tata coal basin (4,000-5,000 calorie-kilograms). However, some of the Tata coal contains a very large proportion of shale; these varieties are largely used at the Bannhida electric power plant.
- b. The heating value of the coal varieties mined in the Borsod and Salgotarjan coal basins is still lower and does not exceed 3,500 calorie-kilograms. The ash content of these coal varieties is very high (20-40 percent) and some form clinkers during firing.

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- e. In the order of heating value the next lower variety is lignite, which is unsuitable for the firing of locomotives.
- d. All in all, the Dorog and Tata coals are best suited to the firing of locomotives, although the heating value of these coal varieties is well below that of anthracite. Giving due consideration to these conditions, the Hungarian locomotive makers designed the grating surface and firebox in much larger dimensions than is usual in the West.
4. When, during the second world war, the retreating German troops carried a large part of Hungary's rolling stock westward, the Hungarian locomotives proved to be very useful on all kinds of railroad lines, due to the large gratings of their boilers which were suitable for burning even inferior fuel. The situation was the reverse in regard to the 500 locomotives which were purchased with the proceeds of the American loan of 1946. These locomotives were designated in Hungary as Series 411 and their fireboxes were too small for Hungarian conditions. As a result, these locomotives were usually fired with better-grade coal.
5. At present, the Hungarian locomotives are operating with coal mixtures. The machine division (Gepeszet-i Főosztály) of the General Directorate has a separate coal group included in the traction department (Vontatási Osztály), which is designated at E<sub>1</sub> and is located at 73-75 Szatalin-ut, Budapest, on the fifth floor of the building. The coal group distributes the coal coming from various mines among the roundhouses, with the purpose in mind that each roundhouse should have the various coal varieties which are needed to arrive at the prescribed coal mixture. Usually either Tata or Dorog coal is mixed with a Borsod variety half and half. Some Pecs coal (maximum 30 percent) is added in special cases for passenger trains. In preparing the mixture, care is taken to prevent the coal from forming slag. In the course of years, the optimum mixtures have been developed. The trouble is, however, that, due to the coal shortage, the roundhouses cannot prepare adequate mixtures, which leads to stoppages in locomotive service. By and large, the average heating value of the coal mixture used is between 3,500 and 4,000 calorie-kilograms. In the light of the foregoing the difficulties imposed upon the locomotive personnel by the coal economy are easy to understand.
6. A simple form of economy is the requirement that a certain percentage of the quantity of coal prescribed for a certain trip must be saved. Although the prescribed amount is meager, experienced locomotive drivers and stokers can always economize 5-6 percent, provided the train is not held up too long on a siding. The problem starts when the locomotives do not receive the prescribed coal mixture and the personnel is nevertheless required to economize. In such instances the Communist Party does not hesitate to intervene, inasmuch as it will distribute better mixtures to Party favorites, while non-members will receive poorer mixtures, though they are expected to show the same standard of performance as the favored personnel. It also happens that under Party pressure, a locomotive brigade "voluntarily" uses a coal mixture which is poorer than the prescribed quality and, at the same time, adheres to the "500 kilometer movement" or other such doubtful device of economy. This is from Communist point of view a good propaganda move because it puts the other crews in an unfavorable light.
7. Despite the efforts of the CEMA, neither Poland nor Czechoslovakia can provide Hungary with anthracite. Hungary is, therefore, restricted to the use of its own coal. The Hungarian economy is also troubled by the fact that the domestic coal varieties (Tata and Dorog coals), which are best suited to the firing of locomotives, are also in demand by the Hungarian industry. The Kelenfold power plant, for example, was designed for the firing of 1,000 tons of Tata coal per day. Hungarian coal mined in 1938 had an average heating value of 4,272 calorie-kilograms. By 1951, this average fell to 3,805 calorie-kilograms. It may be safely assumed that the average quality of coal used by the Hungarian State Railroads deteriorated in the same proportion, because it is well known that the railroads are the largest single coal consumer in Hungary, using 11-12 percent of the total coal production.
8. In 1951, the railroads used approximately 2 million tons of coal of the 3,800 calorie-kilogram quality. If Hungarian coal production could regain its prewar quality level (4,272 calorie-kilograms), the coal consumption of the railroads could automatically be reduced by 10 percent without imported coals. If imported coal is taken into consideration, economies in coal consumption could be increased to 25-30 percent. At the same time the physical strain on the locomotive personnel would be lessened and the maintenance of the locomotives would be improved.

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9. However, the Communist management sees only one way out, namely, to drive the personnel. By this primitive means of conservation 100,000 tons of coal, or 5 percent of the total railroad consumption, is being saved annually. The amount of coal thus economized is being invested in the further development of the heavy industry.

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